

OIPE

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/932,474**

DATE: 09/06/2001  
 TIME: 16:05:03

Input Set : A:\ES.txt  
 Output Set: N:\CRF3\09062001\I932474.raw

3 <110> APPLICANT: BENSON, Timothy  
 4 PRINCE, Donald Bryan  
 6 <120> TITLE OF INVENTION: CRYSTALLIZATION AND STRUCTURE DETERMINATION OF FEMA AND  
 FEMA-LIKE

7 PROTEINS  
 9 <130> FILE REFERENCE: 00236.US1  
 C--> 11 <140> CURRENT APPLICATION NUMBER: US/09/932,474  
 12 <141> CURRENT FILING DATE: 2001-08-17  
 14 <150> PRIOR APPLICATION NUMBER: US 60/226,239  
 15 <151> PRIOR FILING DATE: 2000-08-17  
 17 <150> PRIOR APPLICATION NUMBER: US 60/226,269  
 18 <151> PRIOR FILING DATE: 2000-08-17  
 20 <160> NUMBER OF SEQ ID NOS: 3  
 22 <170> SOFTWARE: PatentIn version 3.0  
 24 <210> SEQ ID NO: 1  
 25 <211> LENGTH: 414  
 26 <212> TYPE: PRT

**ENTERED**

27 <213> ORGANISM: Staphylococcus aureus  
 29 <400> SEQUENCE: 1  
 31 Met Lys Phe Ser Thr Leu Ser Glu Glu Glu Phe Thr Asn Tyr Thr Lys  
 32 1 5 10 15  
 34 Lys His Phe Lys His Tyr Thr Gln Ser Ile Glu Leu Tyr Asn Tyr Arg  
 35 20 25 30  
 37 Asn Lys Ile Asn His Glu Ala His Ile Val Gly Val Lys Asn Asp Lys  
 38 35 40 45  
 40 Asn Glu Val Ile Ala Ala Cys Leu Leu Thr Glu Ala Arg Ile Phe Lys  
 41 50 55 60  
 43 Phe Tyr Lys Tyr Phe Tyr Ser His Arg Gly Pro Leu Leu Asp Tyr Phe  
 44 65 70 75 80  
 46 Asp Ala Lys Leu Val Cys Tyr Phe Phe Lys Glu Leu Ser Lys Phe Ile  
 47 85 90 95  
 49 Tyr Lys Asn Arg Gly Val Phe Ile Leu Val Asp Pro Tyr Leu Ile Glu  
 50 100 105 110  
 52 Asn Leu Arg Asp Ala Asn Gly Arg Ile Ile Lys Asn Tyr Asn Asn Ser  
 53 115 120 125  
 55 Val Ile Val Lys Met Leu Gly Lys Ile Gly Tyr Leu His Gln Gly Tyr  
 56 130 135 140  
 58 Thr Thr Gly Tyr Ser Asn Lys Ser Gln Ile Arg Trp Ile Ser Val Leu  
 59 145 150 155 160  
 61 Asp Leu Lys Asp Lys Asp Glu Asn Gln Leu Leu Lys Glu Met Glu Tyr  
 62 165 170 175  
 64 Gln Thr Arg Arg Asn Ile Lys Lys Thr Ile Glu Ile Gly Val Lys Val  
 65 180 185 190  
 67 Glu Asp Leu Ser Ile Glu Glu Thr Asn Arg Phe Tyr Lys Leu Phe Gln  
 68 195 200 205  
 70 Met Ala Glu Glu Lys His Gly Phe His Phe Met Asn Glu Asp Tyr Phe  
 71 210 215 220  
 73 Lys Arg Met Gln Glu Ile Tyr Lys Asp Lys Ala Met Leu Lys Ile Ala

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74	225	230	235	240
76	Cys Ile Asn Leu Asn Glu Tyr Gln Asp Lys Leu Lys Ile Gln Leu Leu			
77	245	250	255	
79	Lys Ile Glu Asn Glu Met Met Thr Val Asn Arg Ala Leu Asn Glu Asn			
80	260	265	270	
82	Pro Asn Ser Lys Arg Asn Lys Ser Lys Leu Asn Gln Leu Asn Met Gln			
83	275	280	285	
85	Leu Ser Ser Ile Asn Asn Arg Ile Ser Lys Thr Glu Glu Leu Ile Leu			
86	290	295	300	
88	Glu Asp Gly Pro Val Leu Asp Leu Ala Ala Ala Leu Phe Ile Cys Thr			
89	305	310	315	320
91	Asp Asp Glu Val Tyr Tyr Leu Ser Ser Gly Ser Asn Pro Lys Tyr Asn			
92	325	330	335	
94	Gln Tyr Met Gly Ala Tyr His Leu Gln Trp His Met Ile Lys Tyr Ala			
95	340	345	350	
97	Lys Ser His Asn Ile Asn Arg Tyr Asn Phe Tyr Gly Ile Thr Gly Val			
98	355	360	365	
100	Phe Ser Asn Glu Ala Asp Asp Phe Gly Val Gln Gln Phe Lys Lys Gly			
101	370	375	380	
103	Phe Asn Ala His Val Glu Glu Leu Ile Gly Asp Phe Ile Lys Pro Val			
104	385	390	395	400
106	Arg Pro Ile Leu Tyr Lys Phe Ala Lys Leu Ile Tyr Lys Val			
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109	<210> SEQ ID NO: 2			
110	<211> LENGTH: 419			
111	<212> TYPE: PRT			
112	<213> ORGANISM: Staphylococcus aureus			
114	<400> SEQUENCE: 2			
116	Met Lys Phe Thr Glu Leu Thr Val Thr Glu Phe Asp Asn Phe Val Gln			
117	1	5	10	15
119	Asn Pro Ser Leu Glu Ser His Tyr Phe Gln Val Lys Glu Asn Ile Val			
120	20	25	30	
122	Thr Arg Glu Asn Asp Gly Phe Glu Val Val Leu Leu Gly Ile Lys Asp			
123	35	40	45	
125	Asp Asn Asn Lys Val Ile Ala Ala Ser Leu Phe Ser Lys Ile Pro Thr			
126	50	55	60	
128	Met Gly Ser Tyr Val Tyr Tyr Ser Asn Arg Gly Pro Val Met Asp Phe			
129	65	70	75	80
131	Ser Asp Leu Gly Leu Val Asp Tyr Tyr Leu Lys Glu Leu Asp Lys Tyr			
132	85	90	95	
134	Leu Gln Gln His Gln Cys Leu Tyr Val Lys Leu Asp Pro Tyr Trp Leu			
135	100	105	110	
137	Tyr His Leu Tyr Asp Lys Asp Ile Val Pro Phe Glu Gly Arg Glu Lys			
138	115	120	125	
140	Asn Asp Ala Leu Val Asn Leu Phe Lys Ser His Gly Tyr Glu His His			
141	130	135	140	
143	Gly Phe Thr Thr Glu Tyr Asp Thr Ser Ser Gln Val Arg Trp Met Gly			
144	145	150	155	160
146	Val Leu Asn Leu Glu Gly Lys Thr Pro Glu Thr Leu Lys Lys Thr Phe			

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147	165	170	175
149 Asp Ser Gln Arg Lys Arg Asn Ile Asn Lys Ala Ile Asn Tyr Gly Val			
150	180	185	190
152 Lys Val Arg Phe Leu Glu Arg Asp Glu Phe Asn Leu Phe Leu Asp Leu			
153	195	200	205
155 Tyr Arg Glu Thr Glu Glu Arg Ala Gly Phe Val Ser Lys Thr Asp Asp			
156	210	215	220
158 Tyr Phe Tyr Asn Phe Ile Asp Thr Tyr Gly Asp Lys Val Leu Val Pro			
159	225	230	235
161 Leu Ala Tyr Ile Asp Leu Asp Glu Tyr Val Leu Lys Leu Gln Gln Glu			
162	245	250	255
164 Leu Asn Asp Lys Glu Asn Arg Arg Asp Gln Met Met Ala Lys Glu Asn			
165	260	265	270
167 Lys Ser Asp Lys Gln Met Lys Lys Ile Ala Glu Leu Asp Lys Gln Ile			
168	275	280	285
170 Asp His Asp Gln His Glu Leu Leu Asn Ala Ser Glu Leu Ser Lys Thr			
171	290	295	300
173 Asp Gly Pro Ile Leu Asn Leu Ala Ser Gly Val Tyr Phe Ala Asn Ala			
174	305	310	315
176 Tyr Glu Val Asn Tyr Phe Ser Gly Gly Ser Ser Glu Lys Tyr Asn Gln			
177	325	330	335
179 Phe Met Gly Pro Tyr Met Met His Trp Phe Met Ile Asn Tyr Cys Phe			
180	340	345	350
182 Asp Asn Gly Tyr Asp Arg Tyr Asn Phe Tyr Gly Leu Ser Gly Asp Phe			
183	355	360	365
185 Thr Glu Asn Ser Glu Asp Tyr Gly Val Tyr Arg Phe Lys Arg Gly Phe			
186	370	375	380
188 Asn Val Gln Ile Glu Glu Leu Ile Gly Asp Phe Tyr Lys Pro Ile His			
189	385	390	395
191 Lys Val Lys Tyr Trp Leu Phe Thr Thr Leu Asp Lys Leu Arg Lys Lys			
192	405	410	415
194 Leu Lys Lys			
197 <210> SEQ ID NO: 3			
198 <211> LENGTH: 421			
199 <212> TYPE: PRT			
200 <213> ORGANISM: Staphylococcus aureus			
202 <400> SEQUENCE: 3			
204 Met Glu Lys Met His Ile Thr Asn Gln Glu His Asp Ala Phe Val Lys			
205 1	5	10	15
207 Ser His Pro Asn Gly Asp Leu Leu Gln Leu Thr Lys Trp Ala Glu Thr			
208	20	25	30
210 Lys Lys Leu Thr Gly Trp Tyr Ala Arg Arg Ile Ala Val Gly Arg Asp			
211	35	40	45
213 Gly Glu Val Gln Gly Val Ala Gln Leu Leu Phe Lys Lys Val Pro Lys			
214	50	55	60
216 Leu Pro Tyr Thr Leu Cys Tyr Ile Ser Arg Gly Phe Val Val Asp Tyr			
217	65	70	75
219 Ser Asn Lys Glu Ala Leu Asn Ala Leu Leu Asp Ser Ala Lys Glu Ile			
220	85	90	95

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222 Ala Lys Ala Glu Lys Ala Tyr Ala Ile Lys Ile Asp Pro Asp Val Glu  
223 100 105 110  
225 Val Asp Lys Gly Thr Asp Ala Leu Gln Asn Leu Lys Ala Leu Gly Phe  
226 115 120 125  
228 Lys His Lys Gly Phe Lys Glu Gly Leu Ser Lys Asp Tyr Ile Gln Pro  
229 130 135 140  
231 Arg Met Thr Met Ile Thr Pro Ile Asp Lys Asn Asp Asp Glu Leu Leu  
232 145 150 155 160  
234 Asn Ser Phe Glu Arg Arg Asn Arg Ser Lys Val Arg Leu Ala Leu Lys  
235 165 170 175  
237 Arg Gly Thr Thr Val Glu Arg Ser Asp Arg Glu Gly Leu Lys Thr Phe  
238 180 185 190  
240 Ala Glu Leu Met Lys Ile Thr Gly Glu Arg Asp Gly Phe Leu Thr Arg  
241 195 200 205  
243 Asp Ile Ser Tyr Phe Glu Asn Ile Tyr Asp Ala Leu His Glu Asp Gly  
244 210 215 220  
246 Asp Ala Glu Leu Phe Leu Val Lys Leu Asp Pro Lys Glu Asn Ile Ala  
247 225 230 235 240  
249 Lys Val Asn Gln Glu Leu Asn Glu Leu His Ala Glu Ile Ala Lys Trp  
250 245 250 255  
252 Gln Gln Lys Met Glu Thr Ser Glu Lys Gln Ala Lys Lys Ala Gln Asn  
253 260 265 270  
255 Met Ile Asn Asp Ala Gln Asn Lys Ile Ala Lys Asn Glu Asp Leu Lys  
256 275 280 285  
258 Arg Asp Leu Glu Ala Leu Glu Lys Glu His Pro Glu Gly Ile Tyr Leu  
259 290 295 300  
261 Ser Gly Ala Leu Leu Met Phe Ala Gly Ser Lys Ser Tyr Tyr Leu Tyr  
262 305 310 315 320  
264 Gly Ala Ser Ser Asn Glu Phe Arg Asp Phe Leu Pro Asn His His Met  
265 325 330 335  
267 Gln Tyr Thr Met Met Lys Tyr Ala Arg Glu His Gly Ala Thr Thr Tyr  
268 340 345 350  
270 Asp Phe Gly Gly Thr Asp Asn Asp Pro Asp Lys Asp Ser Glu His Tyr  
271 355 360 365  
273 Gly Leu Trp Ala Phe Lys Lys Val Trp Gly Thr Tyr Leu Ser Glu Lys  
274 370 375 380  
276 Ile Gly Glu Phe Asp Tyr Ile Leu Asn Gln Pro Leu Tyr Gln Leu Ile  
277 385 390 395 400  
279 Glu Gln Val Lys Pro Arg Leu Thr Lys Ala Lys Ile Lys Ile Ser Arg  
280 405 410 415  
282 Lys Leu Lys Arg Lys  
283 420

**VERIFICATION SUMMARY**

PATENT APPLICATION: US/09/932,474

DATE: 09/06/2001

TIME: 16:05:04

Input Set : A:\ES.txt

Output Set: N:\CRF3\09062001\I932474.raw

L:11 M:270 C: Current Application Number differs, Replaced Current Application Number

Volume in drive D: 19-01080-1427

Directory of D:\

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2 folder(s)  
0 kilobytes free